## REMARKS

Minor corrections have been made to the specification.

Claims 1 and 3 have been rejected under 35 U.S.C. § 102(b) as being anticipated by the IBM Technical Disclosure Bulletin, dated December 1961. Applicants respectfully submit that this rejection cannot be sustained.

Applicants' invention pertains to a method of making an electret. The method comprises condensing vapor from an atmosphere of a controlled environment onto a dielectric article to form a condensate thereon, followed by drying the article. Applicants have defined the term "controlled environment" to mean a surrounding whose volume, pressure, temperature, or combination thereof, can be regulated and/or altered in a predetermined manner. A "dielectric material" is material in which an electric field gives rise to no net flow of electric charge but only to a displacement of charge. An "electret" is a dielectric material that exhibits at least quasi-permanent electrical charge. "Quasi-permanent" means that the electric charge resides in the electret under standard atmospheric conditions for a time period long enough to be significantly measurable.

An important feature of applicants' invention is the condensing step. By condensing the vapor onto the article, you are able to achieve full contact of the liquid with the dielectric article. The invention thus differs from mechanical operations, like spraying, where the liquid is forced into contact with the dielectric article to create the electret (see, for example, U.S. Patent 5,496,507 to Angadjivand et al.). The invention also does not necessarily need to use pre-wetting solutions or surfactant to achieve the intimate contact necessary to impart charge to the dielectric article. As the Examiner may appreciate, liquids that do not spread on a surface have more affinity to themselves than to the surfaces that they contact. This is why they often have a tendency to bead up. For polymeric materials, in particular ones with low surface energies, the liquid does not want to wet the surface. The applicants' invention, however, can achieve full wetting without having to exert mechanical work on the liquid and without having to pre-treat the article's surface or the liquid.

The IBM Technical Disclosure Bulletin discloses an imaging process for simultaneously exposing and developing a film. This is achieved by superimposing a photoconductive material on a uniformly charged film 4, and then optically exposing the photoconductive layer to a light pattern causing it to be conductive and, in turn, discharging the charged film 4 in the desired pattern. The

image is subsequently developed by exposure to solvent vapor in chamber 16 causing the film to soften and contract, by forces caused by the remaining charged areas.

The IBM Technical Disclosure Bulletin would not have anticipated applicants' invention for the following reasons.

Firstly, the IBM Technical Disclosure Bulletin does not contain sufficient disclosure to anticipate applicants' claims. As the Examiner is aware, anticipation requires that each element and limitation of the claimed invention be known or used by others before the invention date of the applicant.[1] The Examiner admits that the IBM Technical Disclosure Bulletin does not disclose a process of making an electret. The Examiner thus is relying on the principle of inherency to satisfy the electret limitation in applicants' claims. In order to do so, however, the extrinsic evidence that is relied on must be sufficient to establish that persons of ordinary skill in the art would recognize that the missing element is necessarily present in the prior art reference.[2] In other words, the missing limitation — in this case, the creation of electret — must be the necessary result that flows from the teachings of the disclosure. It is not sufficient that the missing limitation may possibly be present in the cited disclosure.[3] Inherency cannot be established by probabilities or possibilities or the mere fact that a certain thing may result from a given set of circumstances.[4]

Presently, the record does not establish that an electret would be produced by the teachings of the IBM Technical Disclosure Bulletin. No evidence has been put forth, which shows that an electret is created after the exposure to the solvent vapor. To the contrary, the IBM Technical Disclosure Bulletin teaches a process for selectively discharging a charged film, with subsequent processing to cause it to deform (with exposure to vapor) to form a pattern. The IBM Bulletin indicates that the solvent vapor "softens [the] film 4." It does not state that condensation occurs or that quasi-permanent electric charge is imparted to the article. The Examiner indicates that an electret would be produced because the article is capable of functioning as an electret and that since the IBM Technical Disclosure Bulletin allegedly discloses all of the process limitations of the claimed method, an electret article must result. This position, however, is entirely based on speculation, a basis upon which the reviewing courts have clearly discarded for establishing

[1] *Oney v. Ratliff*, 182 F.3d 893, 195, 51 USPQ2d 1697, 1699 (Fed. Cir. 1999).
[2] *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1951 (Fed. Cir. 1999).
[3] *Id.*
[4] *Id.*

inherency.[5] If, in any case, the vapor did charge the film, the desired deformation to create the pattern that the IBM document wants would not occur. In short, the IBM bulletin does not disclose that the resulting article is an electret, there is not sufficient detail in the document to determine whether that would be the case, and the creation of an electret would go against the objective of the IBM document.

Secondly, and contrary to the Examiner's view, the IBM Technical Disclosure Bulletin does not disclose all of the limitations of applicants' invention other than the electret limitation. Nowhere does the IBM Technical Disclosure Bulletin disclose *condensing* a vapor onto a dielectric article to form a condensate thereon. The IBM Technical Disclosure Bulletin only discloses creating a vaporized atmosphere in a chamber to expose an image on a film. *Excess vapors are forced through a conduit 30 into a condenser 32* so that the condensed solvent can be returned through a conduit 36 to a tank 18. The condensation therefore occurs in the condenser; not on a dielectric article. Thus, the IBM Technical Disclosure Bulletin does not even teach the first step of applicants' method. Lacking this basic step, the document cannot anticipate applicants' invention under the terms of 35 U.S.C. § 102(b).

For these two reasons, the anticipation rejection based on the IBM Technical Disclosure Bulletin should be withdrawn.

Claims 1, 3-4, 7, and 10-11 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,351,789 to Sidles et al. (Sidles). Applicants respectfully submit that this rejection also cannot be sustained.

Sidles discloses a process for molding a tire through a series of steps, which are recited in the paragraph bridging columns 1 and 2. In short, the Sidles method is directed to a process for removing objectionable air trapped within a mold cavity as the mold is closed without requiring conventional vent holes in the mold sections. One step in the process involves forming a liquid film of a coating material on a surface of the mold cavity or on a surface of the article-to-be-molded before closing the mold. Sidles discloses that the liquid coating can be applied to the surface of the mold cavity or to the surface article by any convenient manner, such as by brushing or spraying the liquid material onto the appropriate surface (see paragraph bridging columns 2 and 3).

[5] *See Robertson* at 1950-51.

Like the IBM Technical Disclosure Bulletin, Sidles does not anticipate the present invention because it can only be speculated that the resulting tire that is produced is an electret article. There is nothing that can be discerned from Sidles, which would indicate that an electret article is necessarily produced through the method steps employed by Sidles. In order to arrive at the conclusion that an electret is formed, it would first have to be established that the tire that Sidles makes qualifies as a dielectric article. Next, it would have to be established that condensation is occurring and that it occurs on the dielectric tire. Further, it would also have to be established that there is more than transitory electret charge that is formed on the surface of the resulting tire. None of these things have been proven in the record that is presently before us. Unless and until these factors can be established without resorting to speculation, the anticipation rejection based on Sidles cannot be sustained.

In addition, it is clear from reading the Sidles patent that it does not teach or suggest the basic steps of applicants' invention. As indicated above, applicants' invention requires the step of *condensing* vapor from an atmosphere of a *controlled environment* onto a *dielectric article* to form a condensate thereon. Sidles does not clearly describe a condensing step, a controlled environment, or a dielectric article. The closest that Sidles appears to come to disclosing a condensing step is in the paragraph that bridges columns 4 and 5. A careful reading of this text, however, reveals that a liquid coating material is applied by introducing a vaporized liquid into the mold cavity. Nowhere does Sidles indicate that this vaporized liquid is altered into a denser form. Sidles only states that the vaporized liquid is fed into the mold. Thus, when the liquid is deposited on the mold cavity or on the article-to-be-molded, it does so from the vapor phase and not necessarily from condensation. In order for the liquid to make full contact with the article, there would have to be a mechanical movement of the vaporized coating material onto all surfaces of the article-to-be-molded. In contrast, applicants' invention is able to fully wet all surfaces without the need for mechanical movement of the vapor phase. Further, Sidles' mold is not closed when the vaporized coating material is fed into the mold cavity. Therefore, even if a condensing step did occur when the vapor is introduced into the mold, it is apparent that the liquid material is not condensed onto the tire from an atmosphere of a *controlled environment.* A "controlled environment" is a surrounding whose volume, pressure, temperature, or combination thereof can be regulated and/or altered in a predetermined manner. When Sidles mold is open, these variables are not altered in a predetermined manner. Moreover, Sidles does not disclose the composition of

the tire material, and therefore it cannot be ascertained whether Sidles is molding a dielectric material. For these reasons, the anticipation rejection based on Sidles cannot be sustained.

Claims 1-4, 7, 9-11, 14-17 and 22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,496,507 to Angadjivand et al. (Angadjivand) in view of U.S. Patent 5,759,926 to Pike et al. (Pike). Applicants respectfully submit that this rejection cannot be sustained.

Neither of these documents teach or suggest condensing a vapor onto a dielectric article to create an electret. Angadjivand teaches spraying water onto a dielectric article, and Pike teaches splitting fibers by thoroughly contacting them with a hot aqueous split-inducing medium (by passing the fibers through a hot-water bath or spraying). Further, only Angadjivand mentions making electret article through an exposure to a liquid, and Pike is only concerned with making super-fine fibers for use in hydrophilic fabrics.

As indicated above, condensation is different from the mechanical methods of getting the liquid to contact a dielectric material in a charging process. Angadjivand uses a mechanical method: jets of water or a stream of water droplets are sprayed onto the dielectric fibers. Angadjivand's method will cause the charging liquid to make greater contact with the outer surfaces of the article-to-be-charged and it may have difficulty making intimate contact with the fibers located in the interior of the fibrous web, particularly if the web is thick or dense. In contrast, applicants' invention allows all surfaces to be contacted more-or-less uniformly without the need for mechanical means. Applicants' invention involves a physical phase change — not mechanical work like Angadjivand

Since neither the primary reference to Angadjivand nor the secondary reference to Pike teach or suggest the basic steps of the present invention, the combination of references would not have rendered applicants' invention obvious to a person of ordinary skill within the meaning of 35 U.S.C. § 103.

In addition, the record is devoid of any teaching or suggestion for combining the teachings of Angadjivand with Pike. The probable reason that the record is devoid of such evidence is that Angadjivand is directed to producing electret filter media, whereas Pike is concerned with making split fibers. As the Examiner is aware, an obviousness rejection based on separate and distinct documents cannot be sustained unless there is some teaching or suggestion or motivation present in

the art which would have led a person of ordinary skill to make the required combination.[6] Without any evidence that explains the specific understanding or principle that would have motivated the skilled artisan to select the references and combine their pertinent teachings, the rejection under 35 U.S.C. § 103 also cannot be sustained for this reason.[7]

For the above reasons, applicants respectfully submit that the prior art references cited in the Office Action do not anticipate or render obvious the present invention. Accordingly, applicants respectfully submit that this application is in condition to be allowed. Please favorably reconsider the rejections and allow this application at an early date.

Respectfully submitted,

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[6] *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1989) ("...this burden [can] only [be sustained] by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.").
[7] *In re Rouffet*, 47 USPQ 1453, 1458-59 Fed. Cir. 1998.

## VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please make the following change to page 1, line 10:

Electrets are dielectric articles that exhibit a lasting charge. This unique property allows electrets to be used in a variety of applications including air, furnace, and respiratory filters, face masks, and electro-acoustic devices such as microphones, headphones, and electrostatic recorders. The charged nature of the electret enhances the article's ability to attract and retain particles such as dust, dirt, and fibers that are suspended in the air.

Please make the following change to page 2, line 28:

"dielectric material" means a material in which an electric [filed] field gives rise to no net flow of electric charge but only to a displacement of charge;

Please make the following change to page 3, line 7:

"quasi-permanent" means that the electric charge resides in the [web] electret under standard atmospheric conditions ( 22 °C, 101,300 Pascals atmospheric pressure, and 50% humidity) for a time period long enough to be significantly measurable; and

Please make the following changes to page 7, line 12:

The charge-imparting liquid, the article, and other components used in the method can be selected to produce an electret having desired properties such that it is suitable for a predetermined use. The method is particularly well-suited for imparting electret properties to nonwovens and for enhancing the filtering performance of nonwovens. One measure of filtering performance is particle capture efficiency — that is, the ability of an article to capture particles. Preferably the charged article exhibits greater particle capture efficiency relative to an uncharged article. More preferably, the particle capture efficiency of the charged article is enhanced by at least about 10%, most preferably by at least about 20%, relative to the particle capture efficiency of the same uncharged article.